

Abstract ID : 434

Title : The Possible Role of Thermal Regulation in the Decline of Steller Sea Lions

Category : Ecology

Student :

Preferred Format : Poster Presentation

Abstract : Hypothesis: Steller sea lion weaned juveniles may continue to require a high lipid diet to maintain their blubber insulation layer after weaning. Blubber is the primary thermal barrier for sea lions at sea. The most efficient way to maintain or increase blubber thermal-insulation layers is through the consumption of high lipid food sources. Depletion of the fat layers by lipid catabolism in unsuccessfully foraging 1-2 year old Steller sea lions could result in the loss of core body heat (hypothermia). Steller sea lions are relatively lean pinnipeds and juveniles normally have relatively poor insulation (thin blubber layers and lack the under fur of fur seals) and have a greater surface to volume ratio than adults requiring higher metabolic rates to maintain core body temperature. With the loss of blubber insulation layers metabolism could increase beyond caloric consumption and the juveniles starve to death or are weakened to the point where they are easy prey for orcas and sharks. There has been a general cooling trend in the Bering Sea (1953-1993) that coincided with the Steller sea lion decline in the Bering Sea and Gulf of Alaska. Exposure to lower environmental temperatures and a possible reduction in the availability of high lipid food sources may have contributed to an increase mortality of juvenile sea lions.